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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,563	10/09/2003	Der-Zheng Liu	REAP0020USA	2562

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EXAMINER	
LE, NHAN T	

ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/605,563	LIU ET AL.	
	Examiner	Art Unit	
	Nhan T. Le	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 18-21* is/are rejected.

7)☒ Claim(s) *2-17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 18, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al (US 6,480528) in view of Owen (US 20040204098) further in view of Lemson (US 5,457,811).

As to claim 1, Patel teaches a method for automatic gain control (AGC) in a receiver of an antenna system comprising a plurality of modules having a receiver antenna for substantially simultaneously receiving a plurality of signals via a single frequency band, the method comprising: amplifying the plurality of received signals with at least an amplifier (see fig. 2, numbers 224a, 224b, 224c, col. 4, lines 56-67, col. 5, lines 1-8); generating a plurality of time domain samples of the amplified signals with at least an analog-to-digital converter (ADC) connected to the amplifier (see fig. 2, numbers 230a, 230b, 230c, col. 4, lines 56-67, col. 5, lines 1-8); determining at least a candidate power according to root-mean-square (RMS) powers of a group of symbols received at the receiver antennas with a processor connected to the ADC (see col. 6, lines 8-46). Patel fails to teach the antenna system comprising a plurality of antennas and setting the gain of the amplifier according to a selected candidate power with the processor. Owen teaches the antenna system comprising a plurality of antennas (see

fig. 2, numbers 12a, 12b, 12k, paragraph 0032). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Owen into the system of Patel in order to support multiple subscriber units (as suggested by Owen see paragraph 0031). The combination of Patel and Owen fails to teach setting the gain of the amplifier according to a selected candidate power with the processor. Lemson teaches setting the gain of the amplifier according to a selected candidate power with the processor (see fig. 6, number 56, col. 29, lines 14-20, 36-42). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Lemson into the system of Patel and Owen in order to calculate the correct attenuation or gain to be set for the first and second level signal changing devices (as suggested by Lemson col. 29, lines 36-42).

As to claim 18, the combination of Patel, Owen and Lemson teaches wherein the set gain is a target power divided by the candidate power (see Lemson fig. 6, number 56, col. 29, lines 14-20, 36-42).

As to claim 21, the claim is rejected as to claim 1 above.

2. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al (US 6,480528) in view of Owen (US 20040204098) Lemson (US 5,457,811) further in view of Chang (US 20040146091).

As to claim 19, the combination of Patel, Owen and Lemson fails to teach wherein the symbols are IEEE 802.11 symbols of the received signals. Chang teaches teaches wherein the symbols are IEEE 802.11 symbols of the received signals (see Chang paragraph 0005). Therefore, it would have been obvious to one of ordinary skill

in the art at the time the invention was made to provide the teaching of Chang into the system of Patel, Owen and Lemson in order to standardize the system.

3. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel et al (US 6,480528) in view of Owen (US 20040204098).

As to claim 20, Patel teaches a method for automatic gain control in a receiver of a multiple antenna system, the method comprising: amplifying the received signal (see fig. 2, number 224a, col. 4, lines 56-67, col. 5, lines 1-8) to generate a first amplified signal with the first amplifier; amplifying the received signal (see fig. 2, number 224b, col. 4, lines 56-67, col. 5, lines 1-8) to generate a second amplified signal with the second amplifier; generating a first plurality of time domain samples of the first amplified signal (see fig. 2, number 230a, col. 4, lines 56-67, col. 5, lines 1-8); generating a second plurality of time domain samples of the second amplified signal (see fig. 2, number 230b, col. 4, lines 56-67, col. 5, lines 1-8); determined the first candidate power according to a first group of symbols and the second candidate power according to a second group of symbols (see col. 6, lines 8-46); selecting one selected candidate power out of the first candidate power and the second candidate power according to a predetermined rule and setting a gain of the first and second amplifier according to the selected candidate power (see col. 6, lines 8-46). Patel fails to teach receiving the first signal by the first antenna; receiving the second signal by the second antenna. Owen teaches receiving the first signal by the first antenna and receiving the second signal by the second antenna (see fig. 2, numbers 12a, 12b, paragraph 0032). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made

to provide the teaching of Owen into the system of Patel in order to support multiple subscriber units (as suggested by Owen see paragraph 0031).

Allowable Subject Matter

Claims 2-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim 2, the applied reference fails to teach wherein the received RMS power for one antenna is determined as the square root of the averaged product of each received symbol and its complex conjugate for all symbols of the first group as cited in the claim.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Le whose telephone number is 571-272-7892. The examiner can normally be reached on 08:00-05:00 (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

N. Le

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